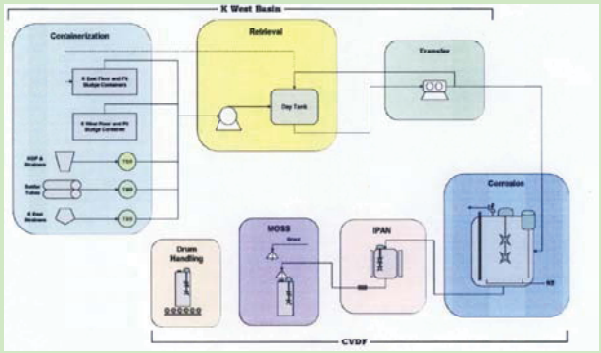
DOE Site:	Hanford/ORP
EM Project:	K Basins Sludge Treatment Process/STP
TRA Report Date:	August 2007

Technology Readiness Assessment Summary

United States Department of Energy Office of Environmental Management (DOE-EM)

K Basins Sludge Treatment Process

Why DOE-EM Did This Review



K Basins Sludge Treatment Process Flow Diagram

DOE is constructing a K Basins Sludge Treatment Process (STP) for retrieving, treating, and packaging the various sludge streams stored in the K West Basin at Hanford. The STP is comprised of seven major subsystems: sludge containerization, retrieval, transfer, oxidation, assay, packaging, and drum handling. The objective of the assessment was to perform a "finding-of-fact" appraisal of the project's overall technical maturity by first identifying the Critical Technology Elements (CTEs) of the process then evaluating the Technology Readiness Level (TRL) of each element.

What the TRA Team Found

The assessment team identified seven CTEs, each of which was further divided into sub-elements. The seven CTEs and the associated TRLs are listed below:

- Material Mobilization (TRL=2)
- Material Transfer (TRL=4)
- Process Chemistry (TRL=2)
- Process Instrumentation (TRL=4)
- Assay (TRL=2)
- Mixing (TRL=2)
- Waste Package (TRL=4)

The team concluded that the critical technologies associated with the Sludge Treatment Process are not at the maturity level required to support Critical Decision-3 (CD-3) for procurement and construction, but are more appropriately between CD-0 and CD-1.

What the TRA Team Recommended

The team noted that one of the primary barriers of establishing higher TRLs relates to unknowns associated with the physical properties of the containerized and/or oxidized sludge. Because of this a representative simulant for testing and demonstration of process technologies has not been developed.

Results of the assessment show that while the overall Critical Technology Element maturity levels may be low, several technology sub-elements are at a relatively high maturity level. This indicates the need for (and the team recommends) a targeted maturation plan that focuses on those technologies requiring further maturity.

To view the full TRA reports, please visit this web site:
http://www.em.doe.gov/Pages/ExternalTechReviews.aspx

TRA Summary: August 2011

The objective of a Technology Readiness Assessment (TRA) is to determine the maturity of certain key technologies, identified as Critical Technology Elements (CTEs), using a systematic, metric-based process and to evaluate the readiness of these technologies for insertion into a project design.